EXHIBIT F

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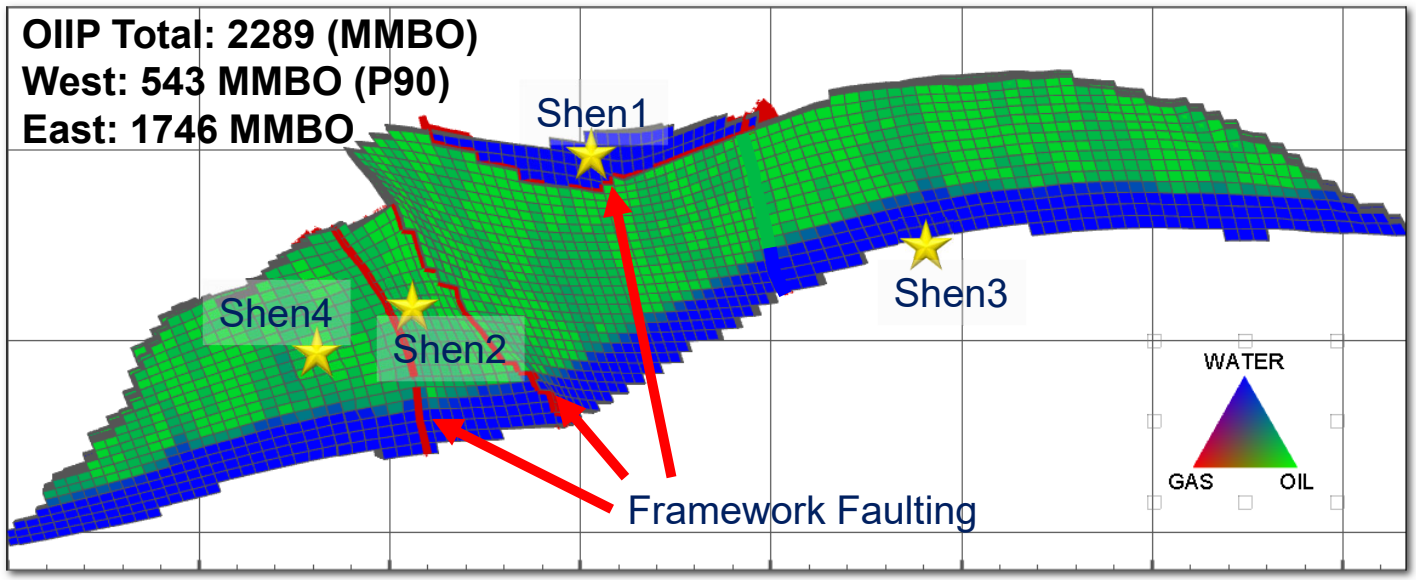
Shenandoah Project

Development Wet Tree Economics 12/17/2015

Framework Faulting: Shen-1 Closed Mid Case



- All faults assumed to being sealing
- OWC assumes projected contacts from Shen2 to Shen3 across entire field
- Known: Shen1 not connected to Shen2
- Known: Shen4 not connected to Shen2

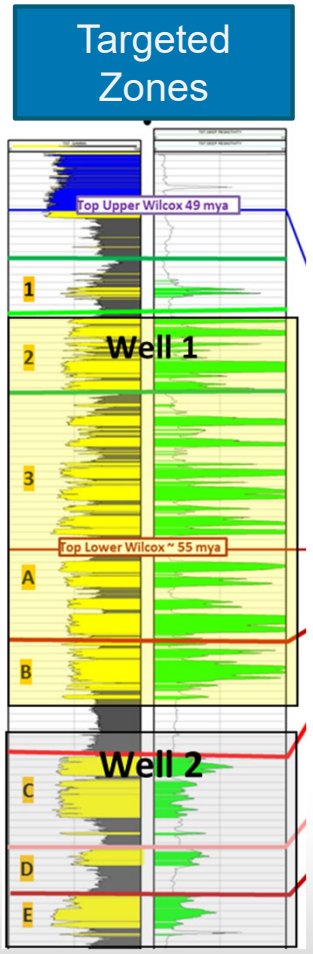
Dynamic Simulation Assumptions

Assumptions

- **30 Year Field Life (well life 25 yrs.)**
- **1st Oil July 2021**
- **Shen 2 Fluids and contacts**
- **Well Constraints**
  - Drawdown = 2,000 psi (GOM Standard)
  - Min. FBHP = 11,000 psi (Completions)
  - Rate = 15,000 BOPD (C-Factor)
  - 60% water cut (Flow Assurance)
- **Facility Constraints:**
  - Oil Production: 100K BOPD
  - Gas Production: 120 MMCFD
  - Water Production: 100K BWPD
  - Liquid Production: 120K BLPD
- **Uptime = 95%**
- **No PI Degradation Applied**

Targeted Zones* Phased Approach:

- **Phase 1:**
  - 4 wells and one flow loop
- **Phase 2:**
  - 6 wells and another flow loop (10 total)
- **No Injection**
- **Targeted Zones***
  - 2 wells per spacing
  - 1st Well: UW2 – LWB
  - 2nd Well: LWC- LWE



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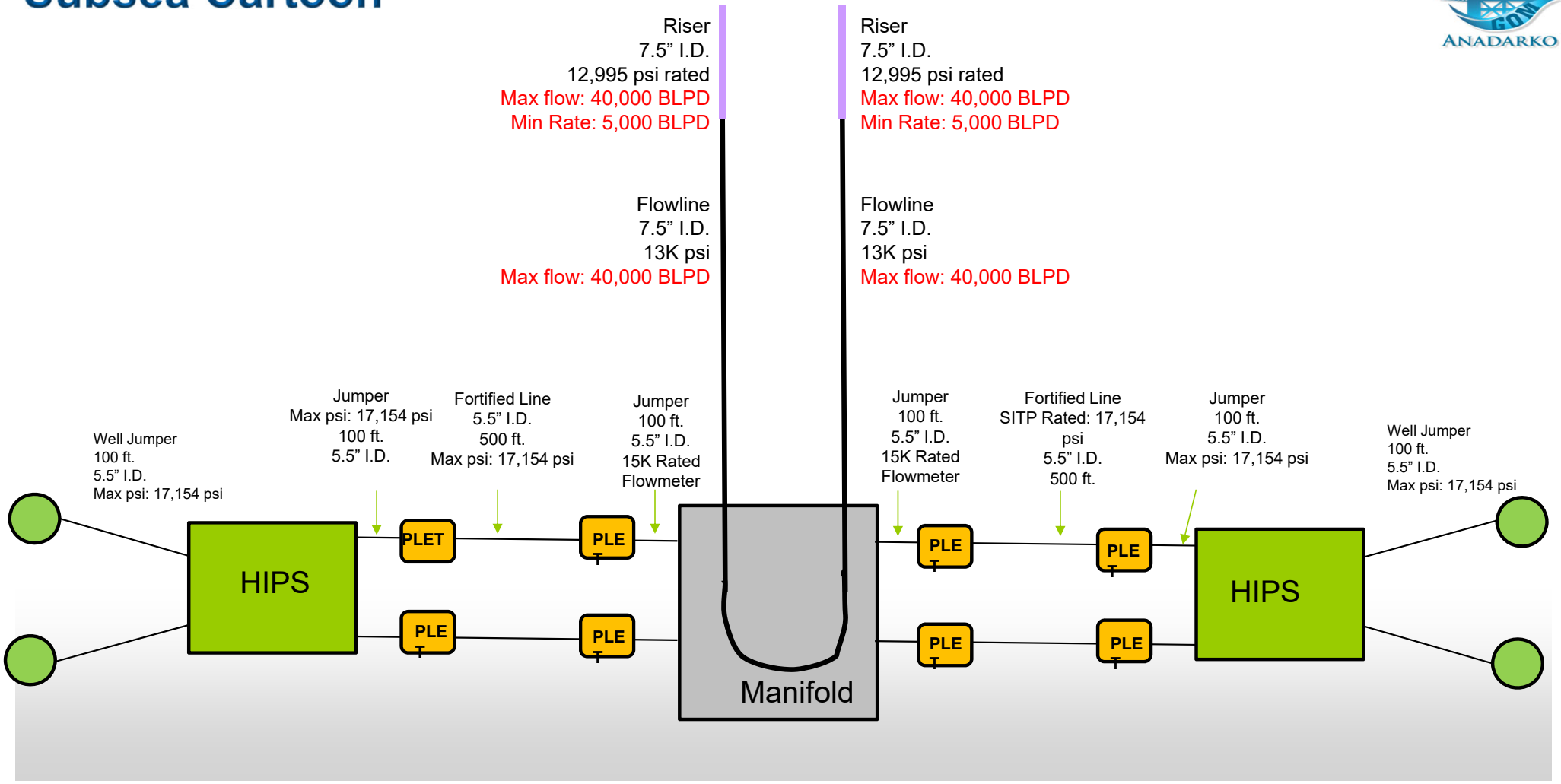
Subsea Cartoon



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MMRA

Top 10 Deepwater GOM Fields

	Field	EUR (MMBOE)
1	Mars	1,133
2	Ursa	399
3	Tahiti	303
4	Auger	271
5	Mad Dog	202
6	Genesis	238
7	Ariel	204
8	Shenzi	180
9	Petronius	198
10	Troika	216

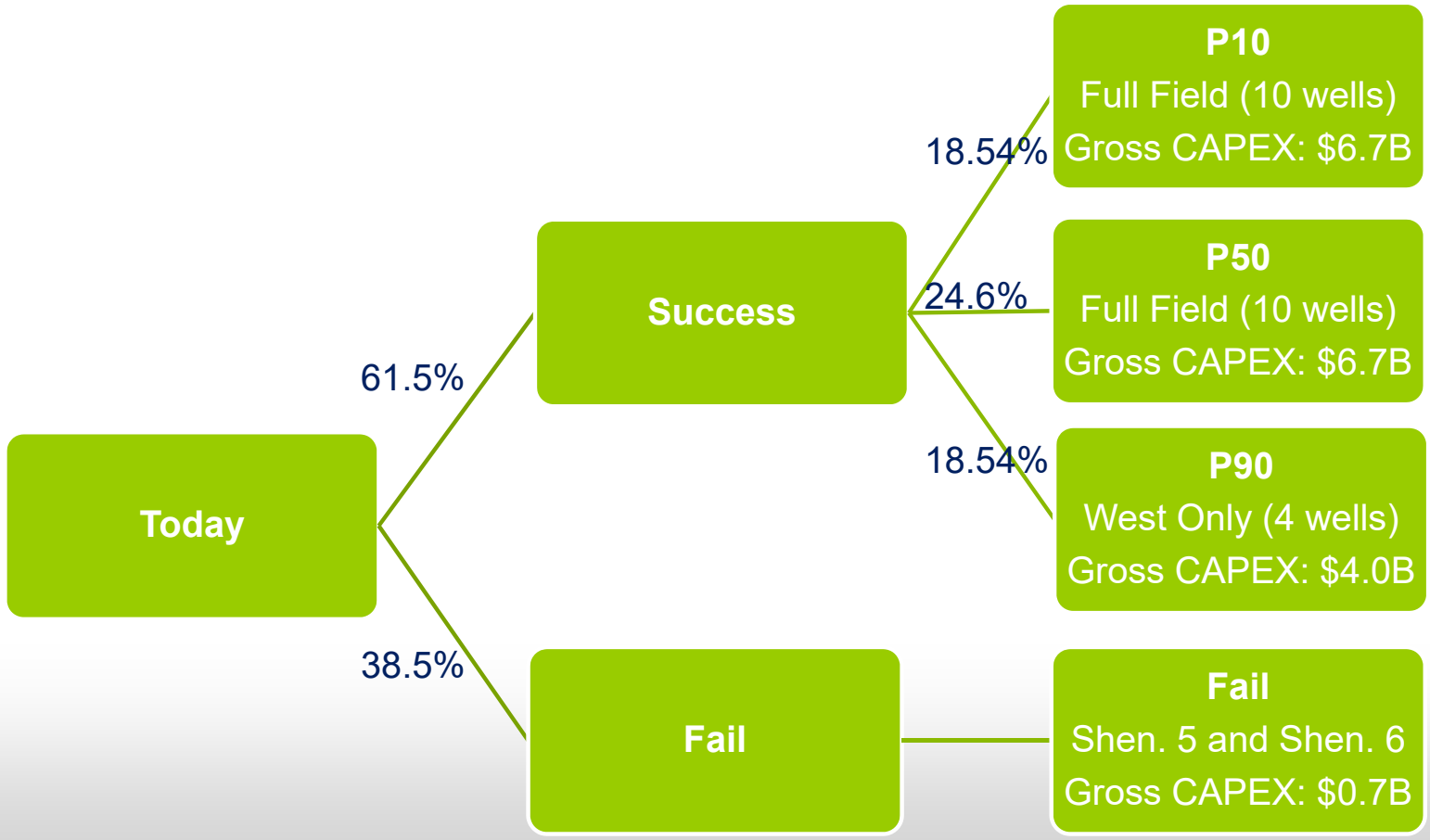
Simulation Current	Original In Place		Prospective Undiscovered Recoverable Resources						Above Commercial Threshold (MCFS= 200 MMBO Tot HC Oil equiv)
			Liquids		Sales Gas		Total Geologic Pre-Drill		
	Oil	Raw Gas	Oil	Total Cond	Non-Assoc	Soln			
	MMBO	BCF	MMBO	MMBO	BCF	BCF		MMBOE	MMBOE
P99	255.05	0.00	37.20	0.00	0.00	42.97		45.30	202.50
P90	460.58	0.00	83.69	0.00	0.00	96.88	(756)	100.26	223.54
Mode	735.09	0.00	109.16	0.00	0.00	197.72		164.32	212.64
P50	974.22	0.00	206.63	0.00	0.00	242.59	(898)	247.16	350.31
Mean (P99->P01)	1143.42	0.00	254.22	0.00	0.00	299.91		304.24	410.46
P10	2101.63	0.00	508.62	0.00	0.00	597.68	(1,130)	608.67	717.40
P01	3838.25	0.00	992.42	0.00	0.00	1128.23		1176.59	1272.74

Current settings...
Estimating method:
VOLUMETRIC (Area X Net Pay X HC Yield)
Intermediate Simulation: 5000 Iterations
Resources Simulation: 5000 Iterations
Truncations:
Input= 0.00/1.00
Output= 0.00/1.00
Area-Net Pay Correlation = 0%
Raw Gas Surface Loss: NONE
Percentile Sorting: Each product sorted individually.
(Warning...resource components will not sum across to HC Equiv.)

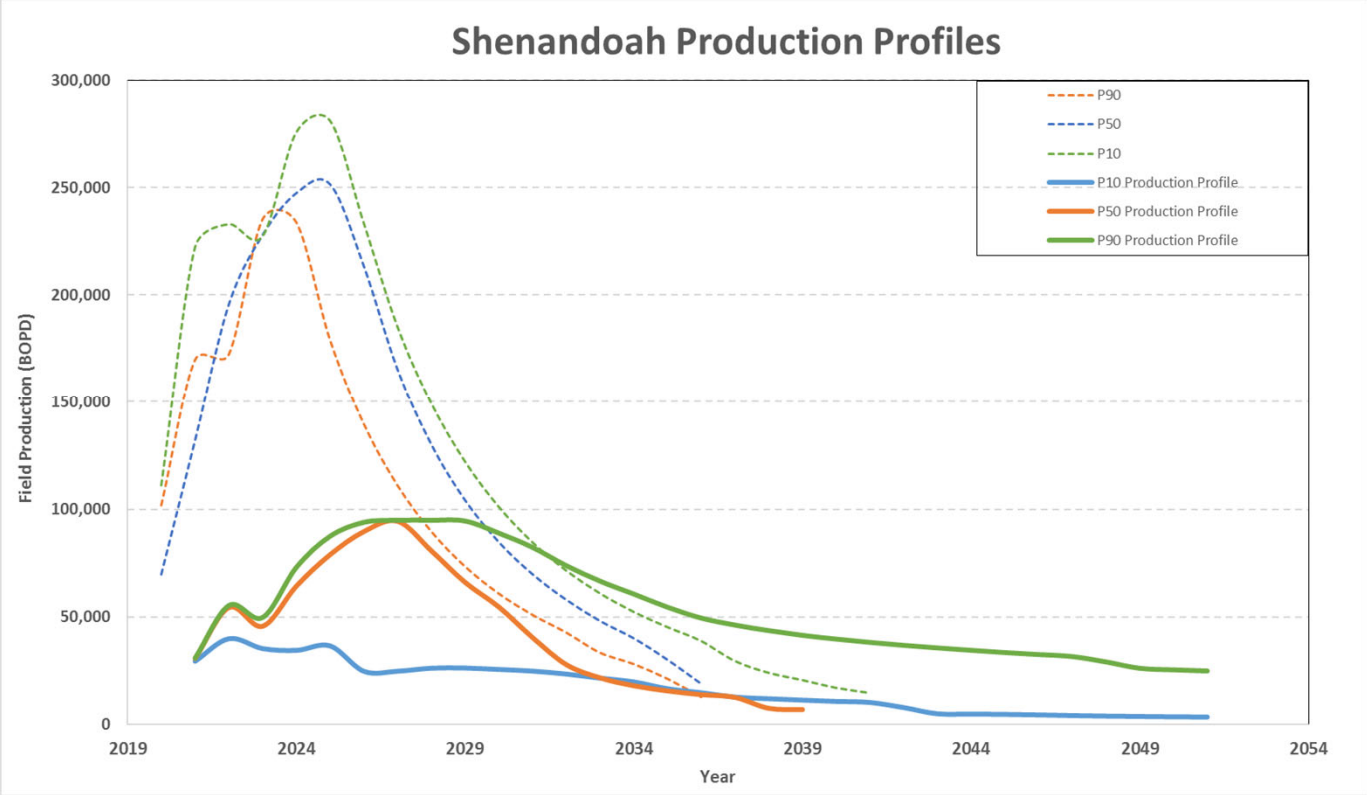
Chance of Success >>	Pg- Chance of Geologic Success (>=Ab Min resource)	Pc- Chance of Commercial Success (>=MCFS)
	100.0%	61.5%

Simulation P10/P90 Ratio=6.1 versus Predicted:

Decision Tree (100 MPOD Spar No Injection)



Production Profiles and Descriptions

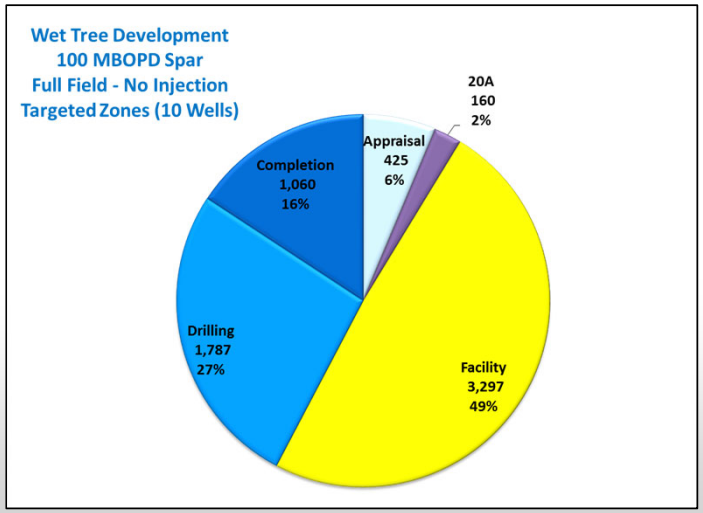


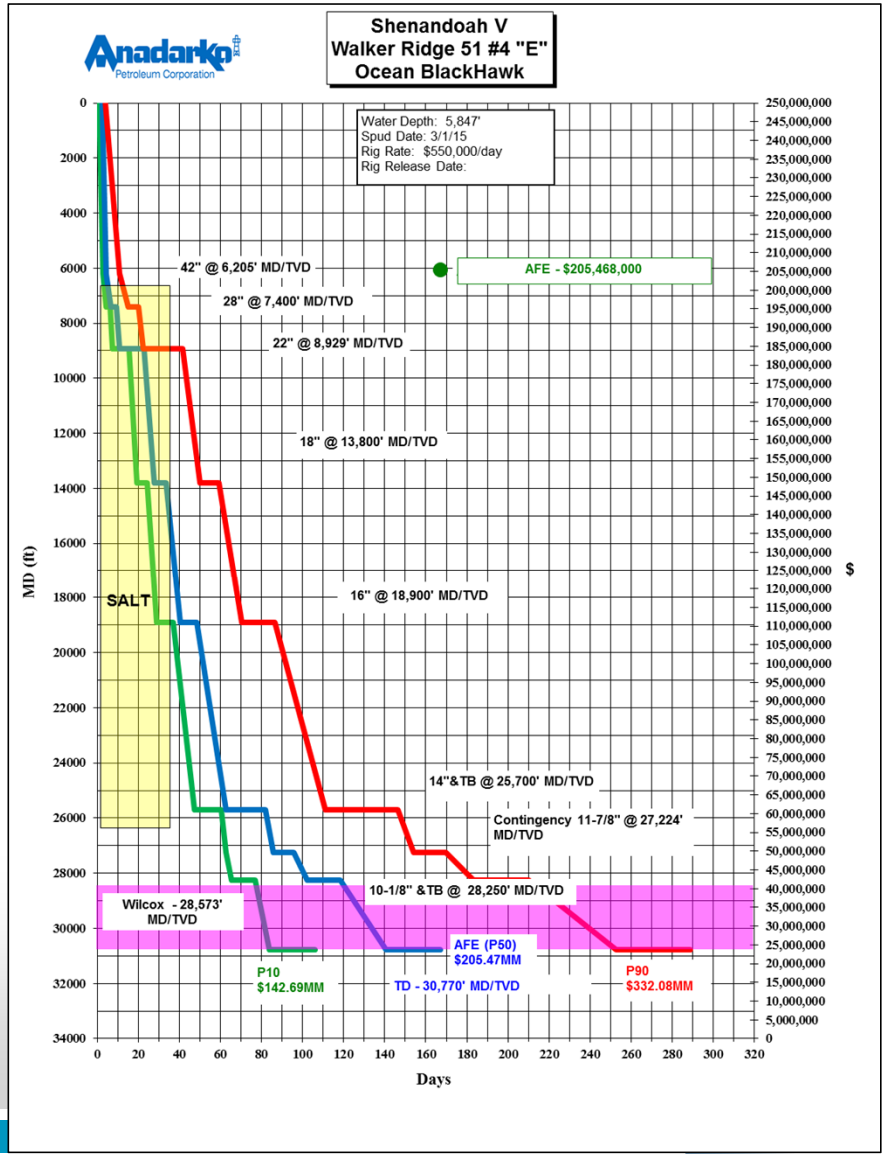
Description:

- **P10:**
  - EUR: 717.4 MMBOE
  - Aquifer: Connected
  - Compartmentalization: Minimal
  - RF: 26%
- **P50:**
  - EUR: 350.3 MMBOE
  - Aquifer: Semi-Connected
  - Compartmentalization: Medium
  - RF: 13%
- **P90:**
  - EUR: 223.5 MMBOE
  - Aquifer: Connected
  - Compartmentalization: Medium
  - RF: 30%

Drilling and Completion Assumptions

- **Keeper Wells:** Shen 5 and Shen 6
- **Completion Type:** Assumed cased hole perforated
- **Drill Days:** 167 days per well and Completion Days: 73 - 62 days per well (~ $300MM/Well)
- **Phase 1:** Wells drilled with 15KMODU (Blackhawk) and completed with 20KMODU
- **Phase 2:** Wells drilled and completed with 20KMODU





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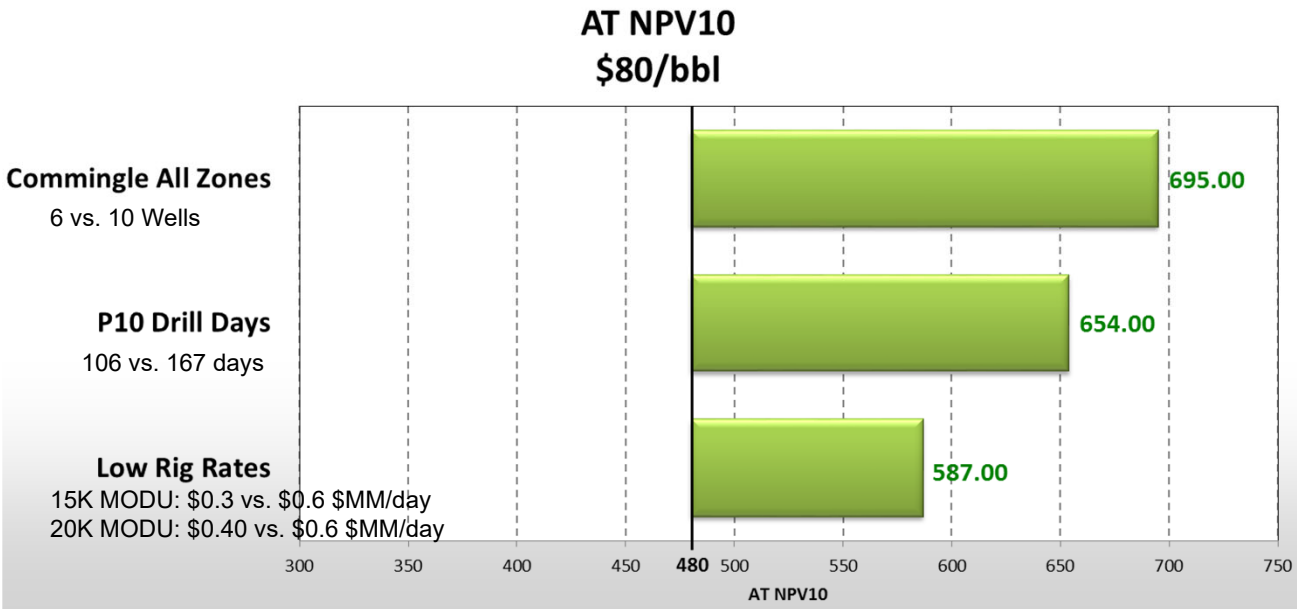
Economic Summary

	Invest $60/bbl		Upside $80/bbl				
	AT NPV10 ($MM)	AT PIR10	AT NPV10 ($MM)	AT PIR10	Mean Net EUR (MMBOE)	F&D ($/BOE)	P_c
Risked Mean	-185	-0.07	480	0.17	254	18.87	61.5%.
Unrisked Mean	-7	0.00	1,070	0.26	416	17.69	100%



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Costs Breakdown (P10 Only) – Standalone Spar

	Wet Tree P10
OPEX	
Fixed/Variable	$ 1,636,270,609
Well Interventions*	$ 2,400,000,000
Total Opex	**$ 4,036,270,609**
CAPEX	
Appraisal	$ 424,835,630
20A	$ 160,300,000
Drilling	$ 1,787,443,104
Completions	$ 1,059,796,317
Facility	$ 3,296,995,380
IPT	$ 64,180,000
Facility	$ 2,155,965,648
Subsea	$ 1,076,849,732
Total CAPEX	**$ 6,729,370,430**

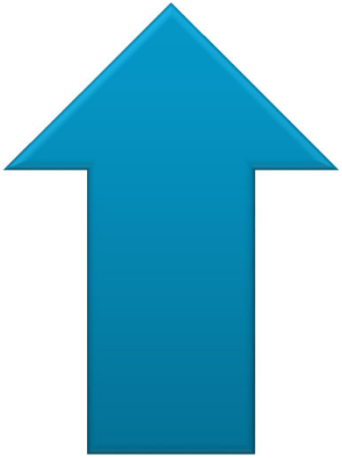
Well Interventions* Assume 20K MODU + COWR

- **Interventions**
  - Begin intervention after 5 years of production
  - Coiled tubing cleanouts every 5 years for asphaltene deposition
  - Cost $60/MM/intervention (20K MODU + COWR)
- **Fixed OPEX**
  - Platform = $3.4MM/month
- **Variable OPEX**
  - Oil = $0.55/bbl
  - Gas = $0.11/mcf
  - Water = $0.15/bbl

Economics: P10 Unrisked

P10	$60 Unrisked	$80 Unrisked
ATAX NPV @ 10% ($MM)	1,177	2,664
ATAX PIR10 ($/$)	0.281	0.635
ATAX F&D ($/BOE)	12.19	12.19
AT LOE ($/BOE)	6.69	6.69
Recoverable Resource (MMBOE)	717.4	717.4

Economic Drivers



Upside Drivers

- Decreased intervention frequency and/or costs→ - OPEX, + NPV10
- Third party tie-back opportunities → - Opex, - ARO, + NPV10
- Optimized Development (Well Placement, Phasing, Completion) → - Capex, - Opex, + NPV10
- Reduced D&C days and costs → - Capex, +NPV10
- Increased STOOIP → + EUR, + NPV10

Downside Drivers

Increased intervention frequency and/or costs→ + OPEX, - NPV10

Increased compartmentalization → + Capex, + ARO, - NPV10

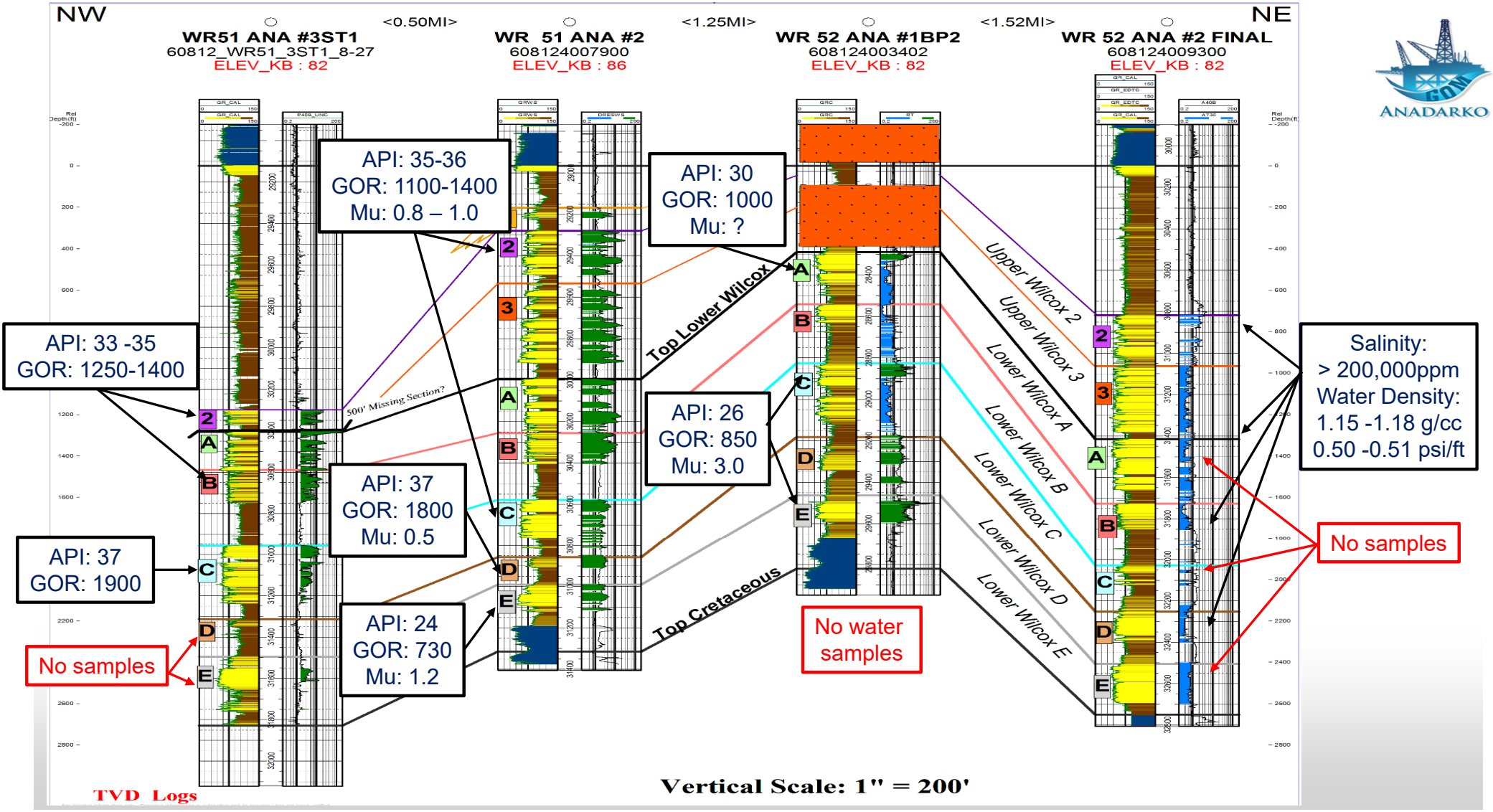
Water injection → + EUR, +Capex, - NPV10

Decreased STOOIP → - EUR; - NPV10

Delayed 1st oil → - NPV10

More Complex Completion Design → + Capex, - NPV10

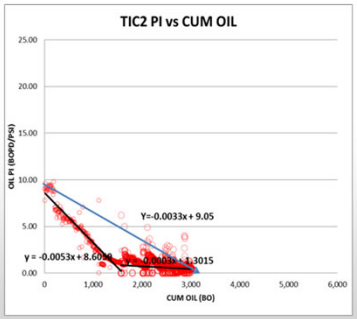
Shenandoah: Aspahltene

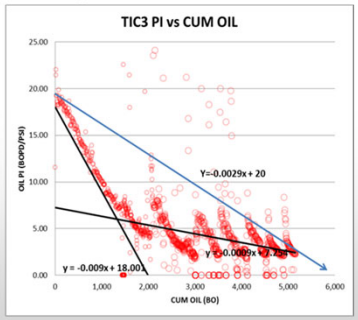

NW
NE
<0.50MI>
<1.25MI>
<1.52MI>
WR51 ANA #3ST1
60812_WR51_3ST1_8-27
ELEV_KB : 82
WR 51 ANA #2
608124007900
ELEV_KB : 86
WR 52 ANA #1BP2
608124003402
ELEV_KB : 82
WR 52 ANA #2 FINAL
608124009300
ELEV_KB : 82
API: 35-36
GOR: 1100-1400
Mu: 0.8 – 1.0
API: 30
GOR: 1000
Mu: ?
API: 33 -35
GOR: 1250-1400
API: 26
GOR: 850
Mu: 3.0
API: 37
GOR: 1800
Mu: 0.5
API: 37
GOR: 1900
API: 24
GOR: 730
Mu: 1.2
No samples
No water samples
No samples
Salinity:
> 200,000ppm
Water Density:
1.15 -1.18 g/cc
0.50 -0.51 psi/ft
Top Lower Wilcox
Top Cretaceous
500' Missing Section?
Upper Wilcox 2
Upper Wilcox 3
Lower Wilcox A
Lower Wilcox B
Lower Wilcox C
Lower Wilcox D
Lower Wilcox E
TVD Logs
Vertical Scale: 1" = 200'

Aspahltene Onset Pressure Tests (AOP)

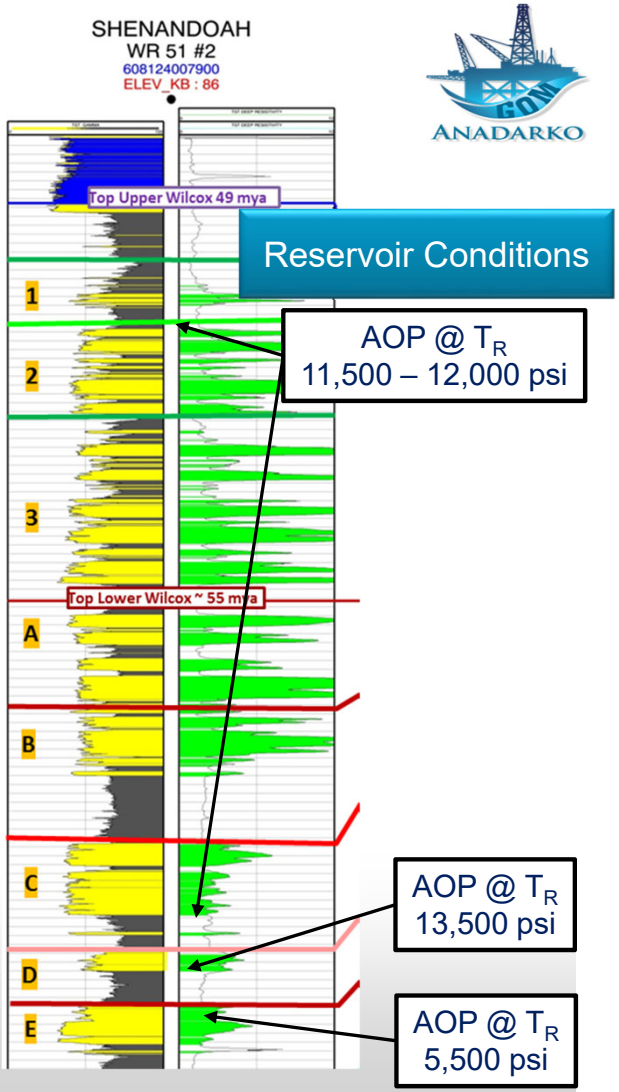
- **Project Impact (Rate/EUR/NPV10)**
  - Completion design → Zonal Isolation; Well Count
  - Intervention → Xylene Treatments
  - Need for pressure support → Aquifer and/or Injection
- **Uncertainty Handled in Dynamic Modeling and Economics**
  - Well Deliverability and Recovery
    - *Reservoir abandonment*
    - *Increasing skin*
  - Completion and Intervention Costs
- **Case History : Ticonderoga**

No Stimulation | *Low PI Stimulation* | *High PI Stimulation*





Completion failure | *Still Producing* | *Still Producing*



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Aspahltene Onset Pressure Tests (AOP)

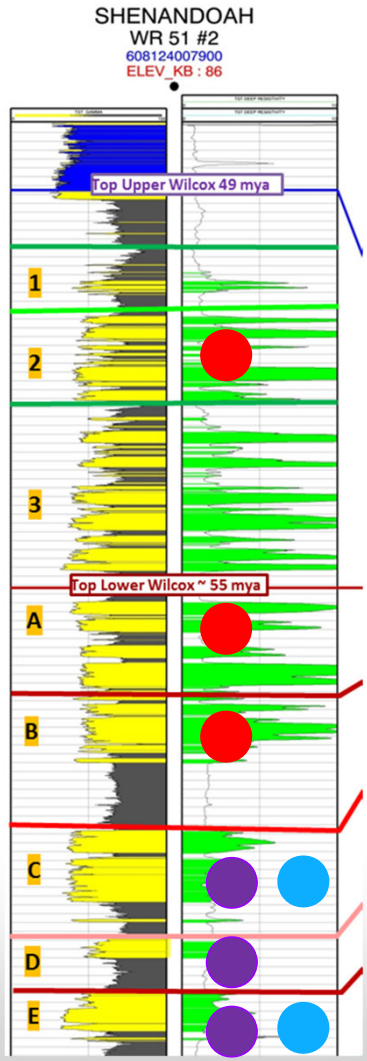
Commingle AOP Test Completed:

LWC (20cc) – LWD (20cc) – LWE (20cc)
AOP @ T_R
>19,500 psi

Commingle AOP Test Planned:

LWC (30cc) – LWE (30cc)
AOP @ T_R

UW2 (20cc) – LWA (20cc) – LWB (20cc)
AOP @ T_R



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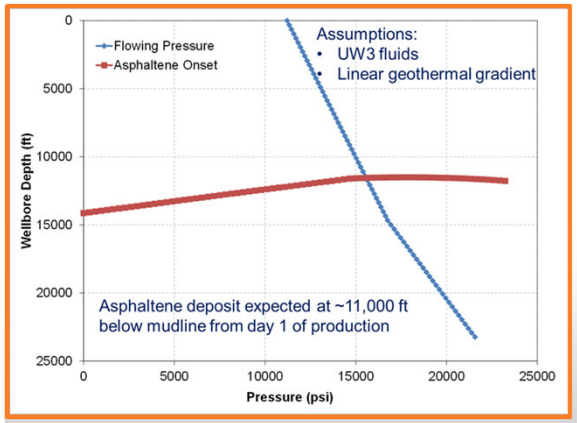
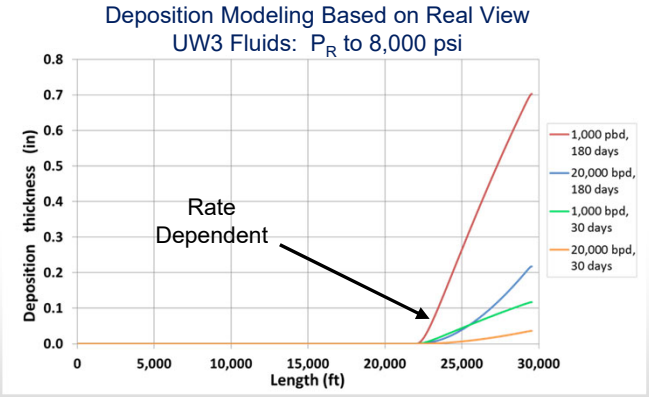
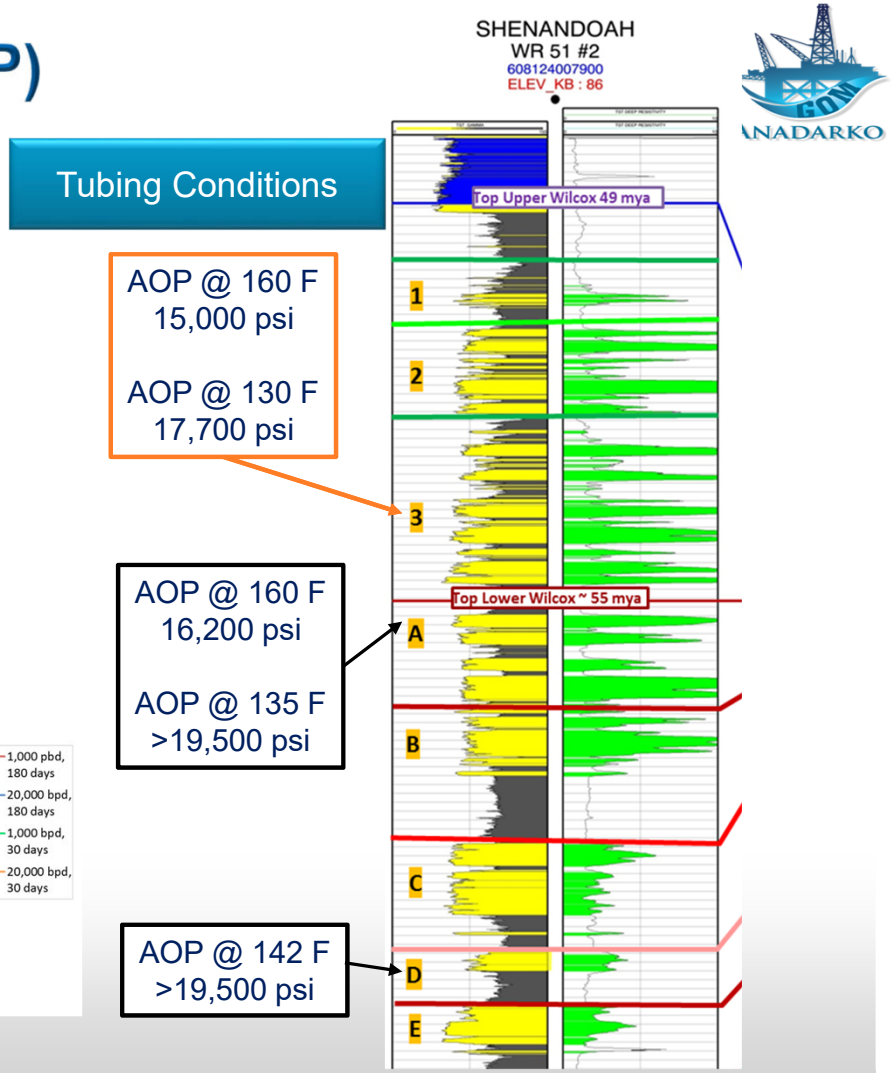
Aspahltene Onset Pressure Tests (AOP)

- **Project Impact (Rate/EUR/NPV10)**
  - Mitigation and/or Intervention → Inhibitors; Coil Cleanouts
- **Uncertainty Handled in Dynamic Modeling and Economics**
  - Well Deliverability and Recovery
    - *Increasing skin*
  - Intervention Costs







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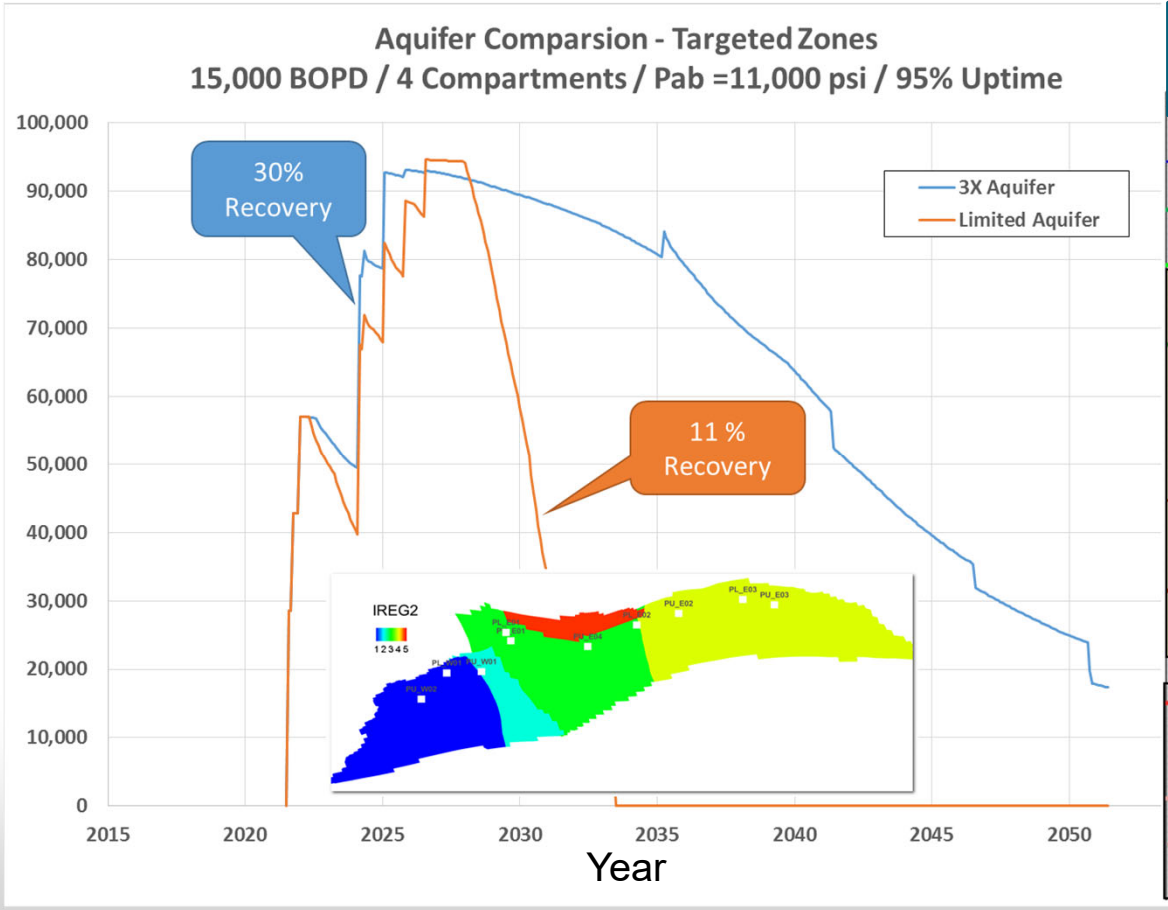
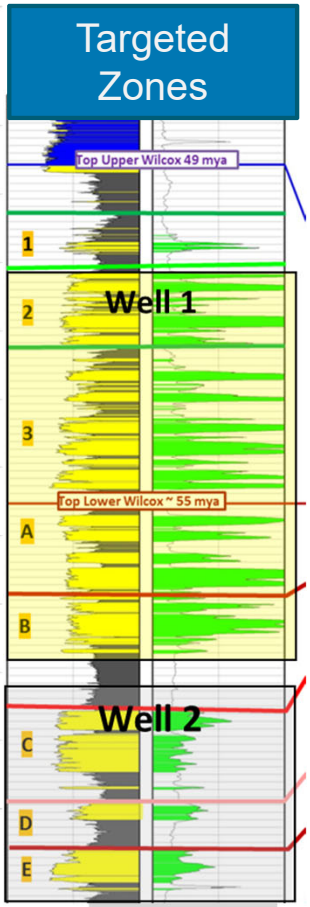
Dynamic Simulation: Assumptions

- **30 Year Field Life**
- **1st Oil July 2021**
- **Shen2 Fluids and Projected Contacts**
- **Simplified Network Model**
  - Two flow loops
  - 60% water cut
- **Well Limits**
  - Drawdown = 2000 psi
  - Pab = 11,000 psi
  - Rate = 15,000 BOPD
- **Uptime = 95%**
- **No PI Degradation Applied**





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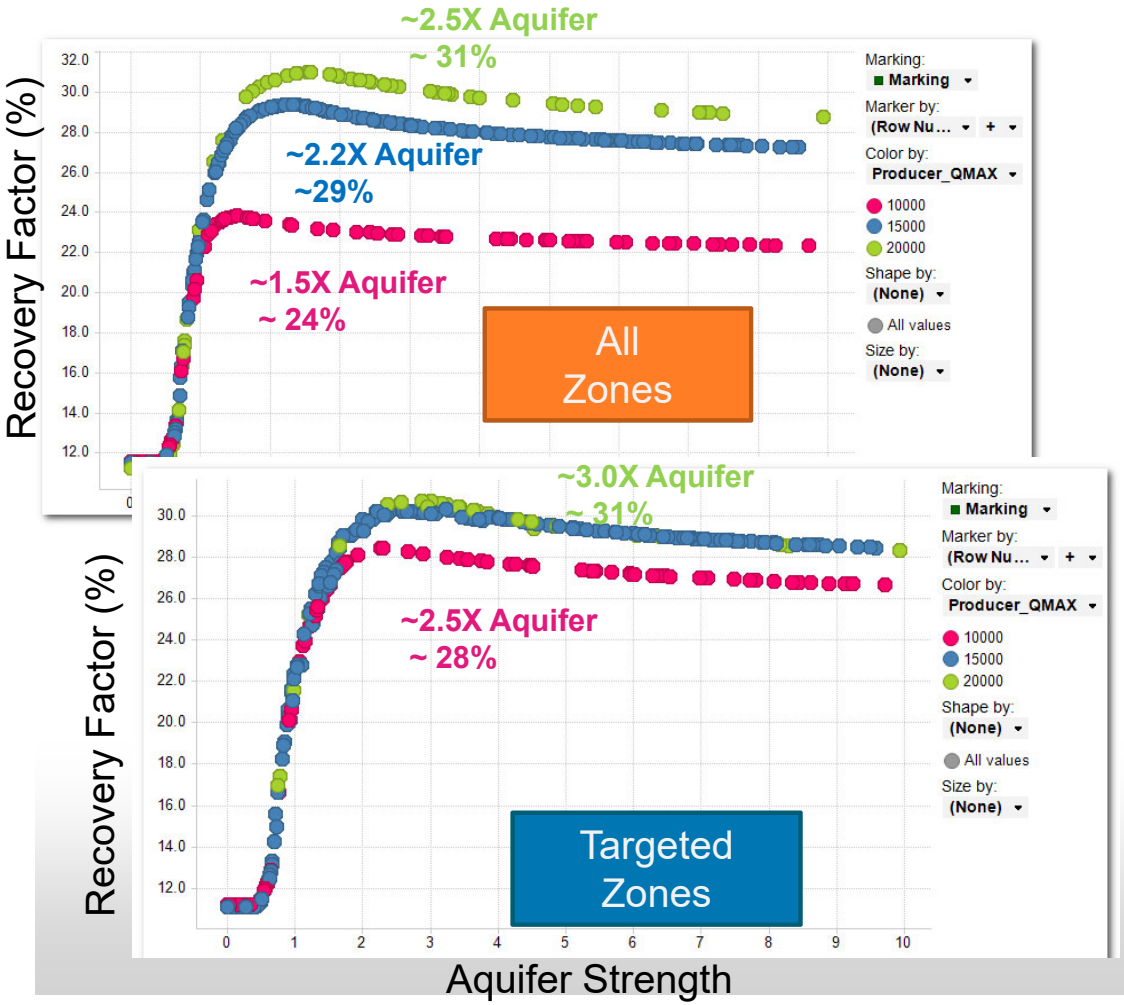
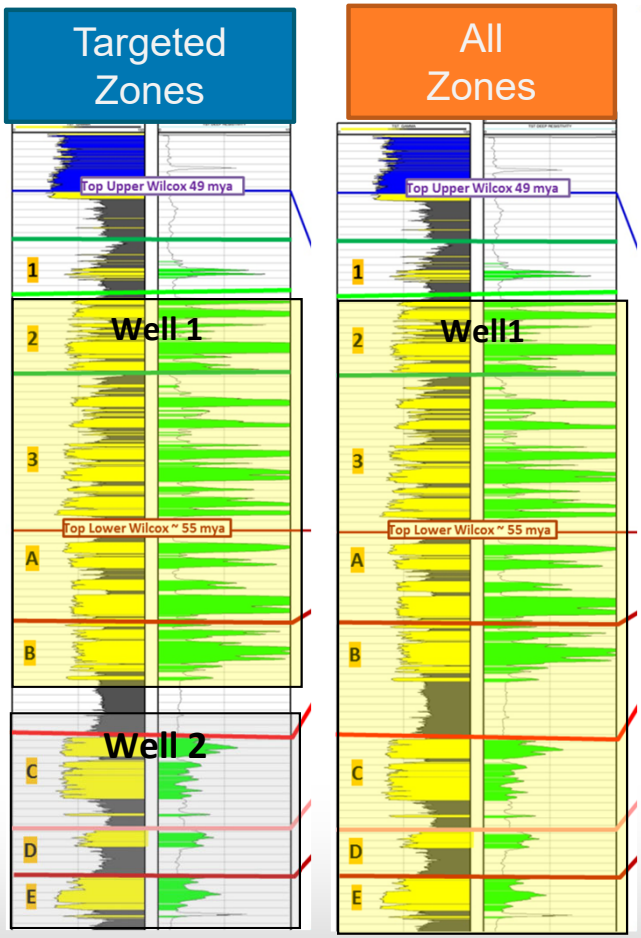
Rate of Withdraw and Aquifer Impact





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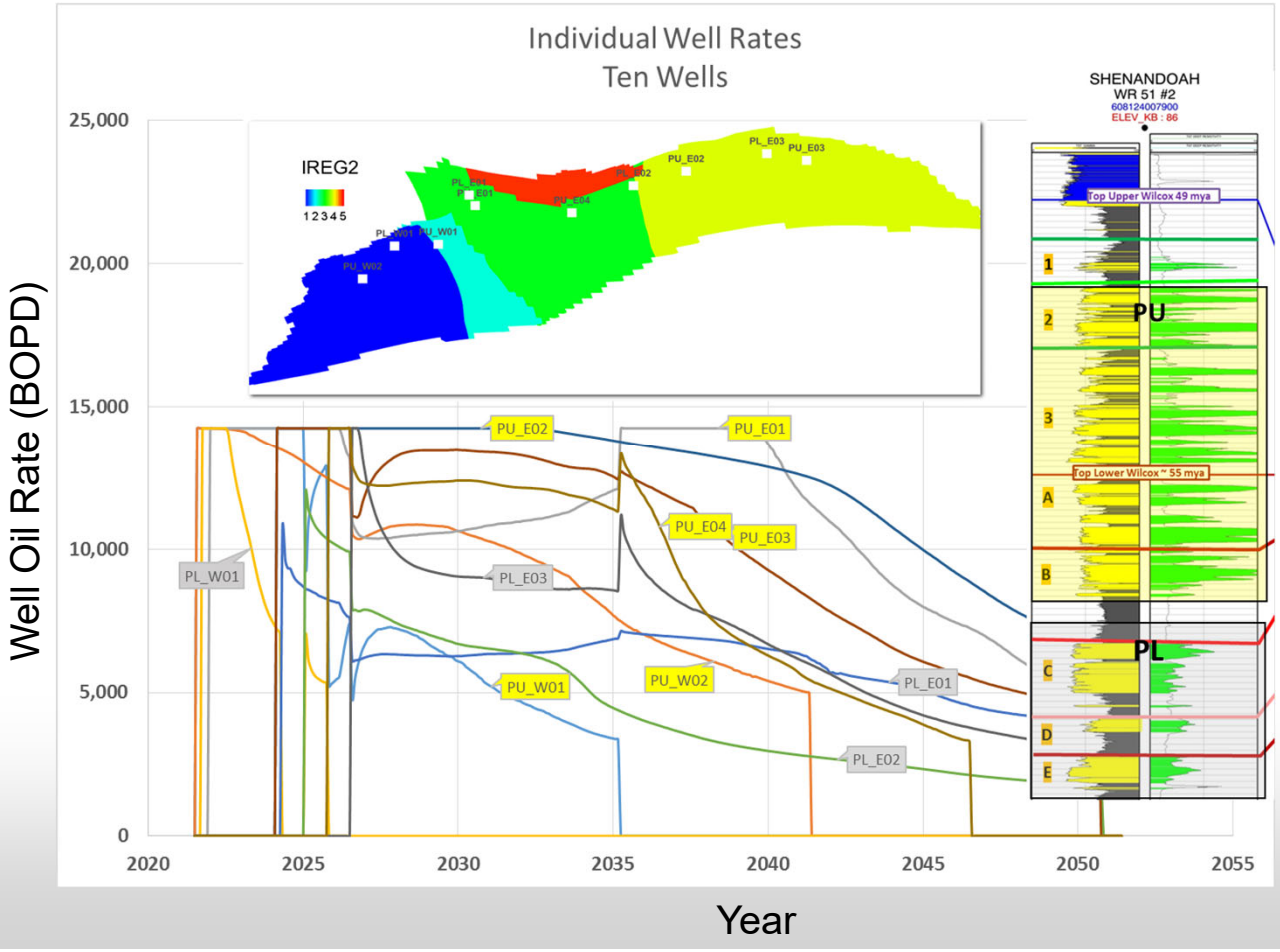
Targeted Zones Well Rates (3X Aquifer)

- **Facility constraint dominated**
  - Wells competing against each other
  - PU wells dominate, not drawdown limited
  - PL wells impacted by PU wells, drawdown constraint more impactful



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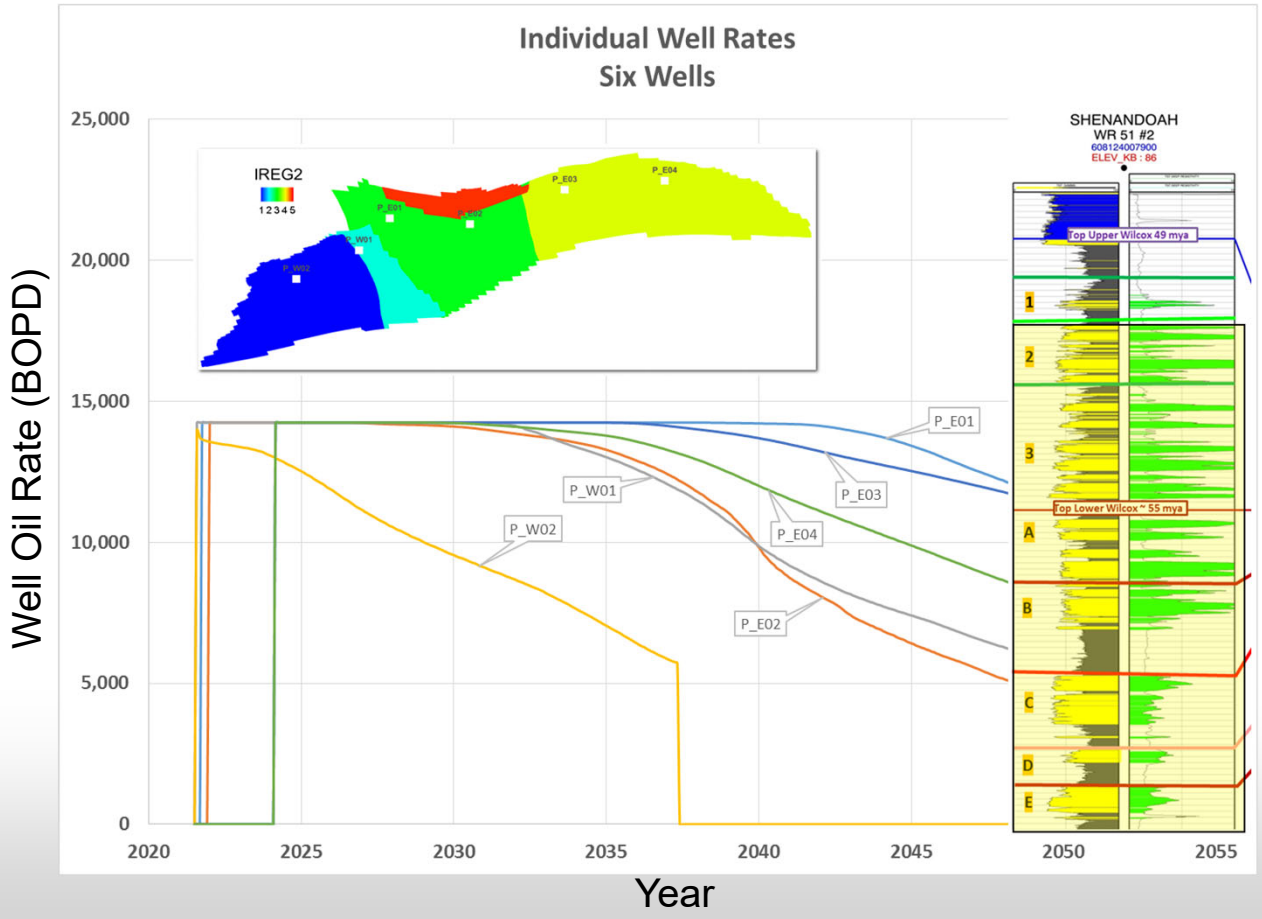
All Zones Well Rates (3X Aquifer)

- **Wells are rate limited**
- **Drawdown constraint is not a big factor**
- **Steep drop off is water cut limit**



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Targeted Zones: Capital Spend

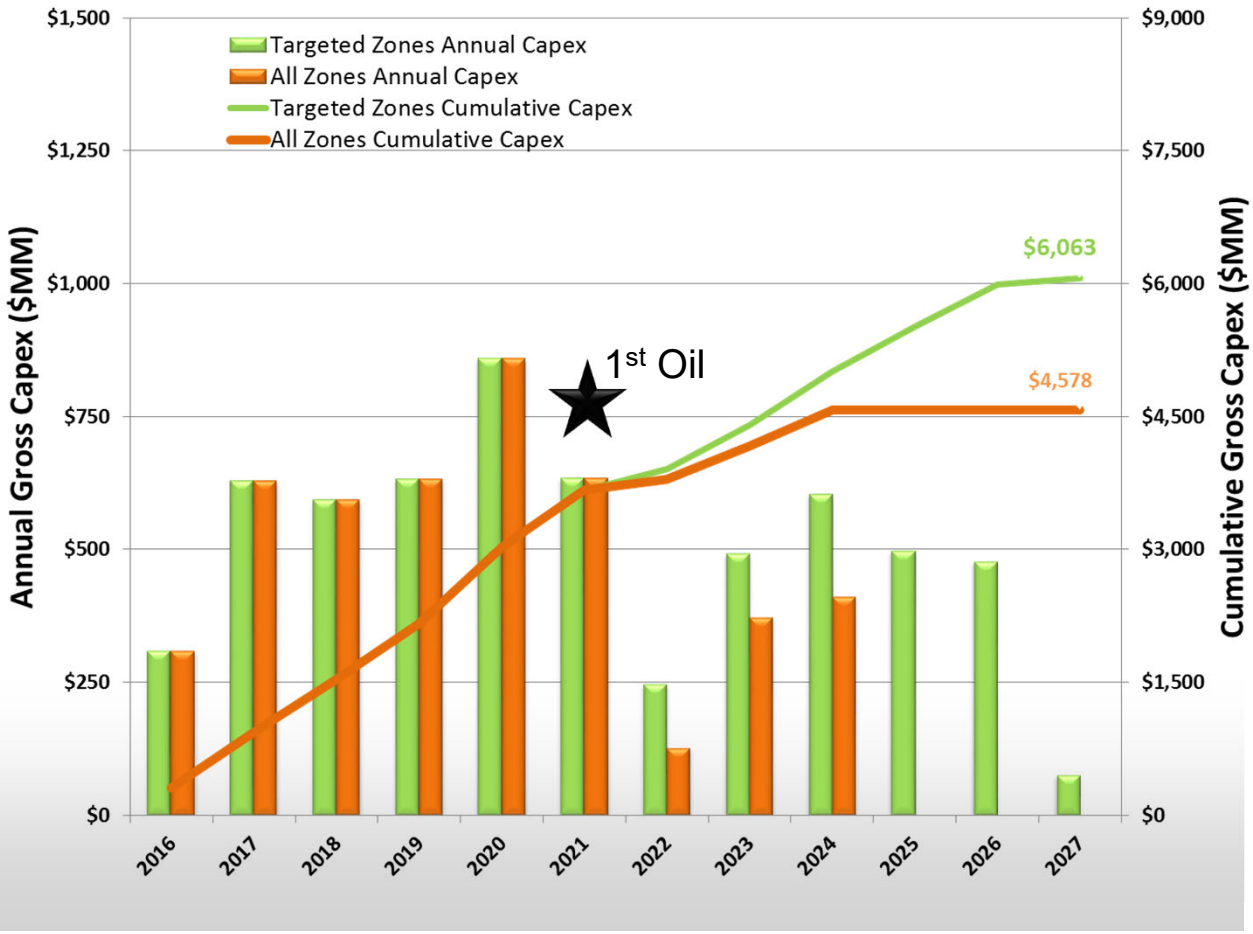
Phased Approached

Targeted Zones

- Phase 1: 4 wells and one flow loop
- Phase 2: 6 wells and another flow loop
- No Injection

All Zones

- Phase 1: 4 wells and one flow loop
- Phase 2: 2 wells and another flow loop
- No Injection



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Economics Invest Price ($60/bbl & $3.25/mcf)

Targeted Zones (APC WI=30%); Point Forward 2016

	NPV10 $MM	NPV15 $MM	NPV20 $MM	PIR10	F&D $/boe	LOE $boe
Depletion	0.5	-152.3	-229.4	0.0	26.08	4.52
3X Aquifer	539.8	88.5	-112.5	0.48	9.62	4.48

All Zones (APC WI=30%); Point Forward 2016

	NPV10 $MM	NPV15 $MM	NPV20 $MM	PIR10	F&D $/boe	LOE $boe
Depletion	164.5	-42.2	-153.0	0.17	19.11	3.93
3X Aquifer	596.0	141.3	-68.3	0.63	7.53	3.75

Economics Upside Price ($85/bbl & $4.50/mcf)

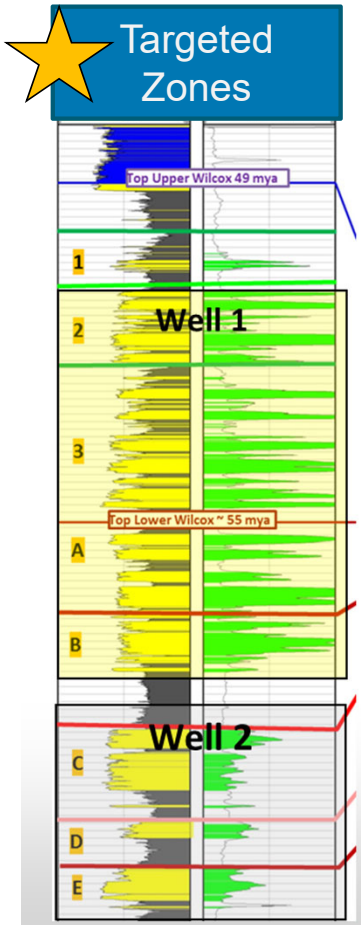
Targeted Zones (APC WI=30%); Point Forward 2016

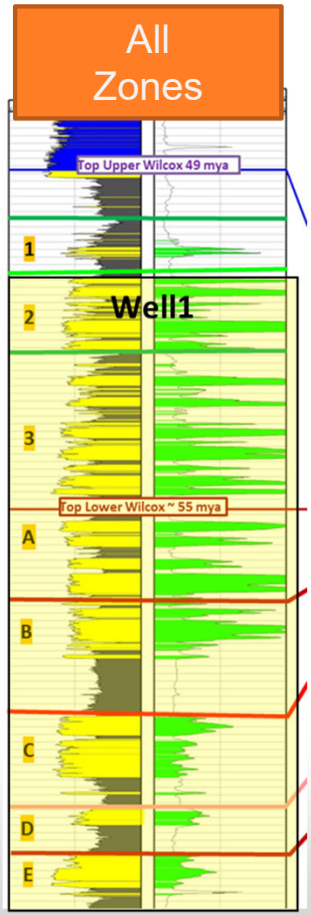
	NPV10 $MM	NPV15 $MM	NPV20 $MM	PIR10	F&D $/boe	LOE $boe
Depletion	400.6	105.0	-58.6	0.35	26.08	4.52
3X Aquifer	1,199.3	460.3	113.5	1.06	9.62	4.48

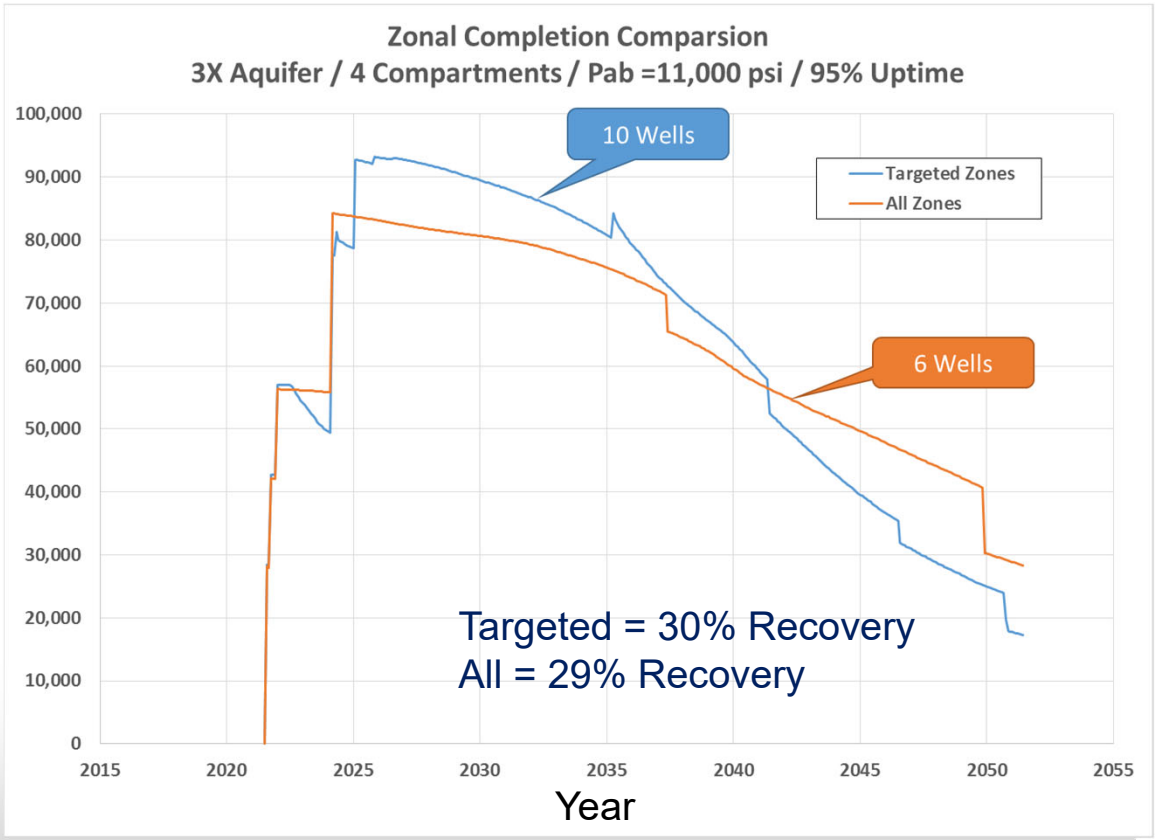
All Zones (APC WI=30%); Point Forward 2016

	NPV10 $MM	NPV15 $MM	NPV20 $MM	PIR10	F&D $/boe	LOE $boe
Depletion	577.9	224.3	24.6	0.60	19.11	3.93
3X Aquifer	1219.4	496.7	150.3	1.28	7.53	3.75

Dynamic Simulation: Completion Strategy Impact







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